



AGATCTACAAAGGCAAAATTGAAAAATAGATAAAATTTTCGCAGGTATTAAGCCGACTTAAACAAATGAGTGAAGAA 80
TCTAGATGTTCCGTTAACTTTTTATCTATTTTAAAGCGTCCATAATTTCCGGCTGAATTTTGTTTACTCACTTCTT
GAAAAGAAAAAATAAATACATATTTTGAGTTAGTAAAGAGAAAGAAAAATAAAGAAGACCTCGGCTTAACAGTCGA 160
CTTTTCTTTTTTATTTATGTATAAAACTCAATCATTTTCTCTTTCTTTTTTATTTTCTTCTGGAGCCGAATTGTGAGCT
AAACCAGAAATAATAAAAGAAAGAGACTGTGATTTTAAATGGAAATCGTGAGGAAAGAAAAATTTTAAATTTTCATTTT 240
TTTTGGTCTTTATTTTCTTCTCTGACACTAAAAATTACCTTTAGCACCTCTTTTCTTTTAAATTTAAAGTAAAA
CGAGGGATTAAATTTGTTGTAAGTTGATGAAAAATCTAGATAAAAAATGCAGATCAAAAAATGTTGAAATTTGACATTATT 320
GCTCCCTAATTAAACAACATTCAACTACTTTTTAGATCTATTTTACGCTAGTTTTTACACAACTTAAACTGTAATAA
GAAATACGTAGTATCAATAATGGGGTTTGCTCTATTTTATTTTGCGAAGATTGAAAACTCTGAGTGAAGAAAAATAGTT 400
CTTTATGCATCATATAGTTATTACCCCAACAGATAAAAAATAAACGCTTCTAACTTTTAGACTCACCTTCTTTTATCAA
TGCGAGAGCAAAAAACCCTTGCCGTTTTTTTCAAAATGACTTTTGAAAAAATTCATTGTGAGCGGTAGCGAACTTTTGAA 480
ACGCTCTCGTTTTTTTGGGAACGGCAAAAAAGTTTACTGAAACCTTTTTTAAGTAACACTCGCCCATCGCTTTGAAACTT

FIG.- 1A-1



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ATTTTACATTGGAAATTTGAAAAATAAGGCAAAAGAACTCAAAATGGAAAAATATTATTATAAAAAAGGAGATCG 560

TAAAAATGTAACTTTTAACTTTTATTCGGTTTCTTTGAGTTTACCTTTTATAATAATATTTTTTCTCTAGC

Asn Phe Leu His Trp Lys Phe Glu Lys Ile Arg Gln Lys Lys Leu Lys Trp Lys Lys Tyr Tyr Lys Lys Arg Arg Ser

GATATGGATTTTAAAGCAGAAAACTGACATTGAATGAAAAAAGATTTGGAAAAATCTATGCTGAGAGTGAATTAAA 640

CTATACCTAAATTTTCGCTTTTGACTGTAACTTACTTTTTTCTAAACCTTTTITAGATACGACCTCTCACTTAATTT

Asp Met Asp Phe Lys Ser Arg Lys Leu Thr Leu Asn Glu Lys Lys Asp Leu Glu Lys Ile Tyr Ala Glu Ser Glu Leu Lys

AGCAAAAAAATTGGGAACCTCAACCCGGTGTGTTTTAGAAATGACGATGAAAGAAATGATGAAAAATATCAACCTCGATG 720

TCGTTTTTTAACCCTTGAGTTGGGCCACACAAATCTTACTGCTACTTCTTACTACTTTTATAGTTGGAGCTAC

Ala Lys Lys Leu Gly Thr Gln Pro Gly Val Val Leu Glu Met Thr Met Lys Glu Met Met Lys Asn Ile Asn Leu Asp

TTAATGAAGAAACAGCAGGTCAATATAGGAAATTTTCAAAAAATAAGTTGAGCATAGTAAATCAGATGATCTAGTAACG 800

AATTACTTCTTTGTCGTCAGTTATATCCITTAATAAGTTTTTATTTCAACTCGTATCATTTAGTCTACTAGATCATTTGC

Val Asn Glu Glu Thr Ala Gly Gln Tyr Arg Lys Leu Phe Lys Asn Lys Val Glu His Ser Lys Ser Asp Asp Leu Val Thr

FIG. 1A-2



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GGACTATTAGAGTGTGGAACTCGAAATAGTTTGTATAAACAAGAAGTGCCTTTCGTTTTGTATTTGTGAGAGAATTCA 880

CCTGATAATCTCACACCTTGAGCTTTATCAAAACTATTTTGTCTTCACGGAAAGCAAAACATAAACACTCTCTTAAGT

Gly Leu Leu Glu Cys Gly Thr Arg Asn Ser Phe Asp Lys Thr Arg Ser Ala Phe Arg Phe Cys Ile Cys Glu Arg Ile Gln

GCAACTGAGAAAGAAGCTGATAATGCAAGAAGAGTAAAGATTTCGATACAAATGAAGCAAAACTAAAGAGGCTTTTG 960

CGTTGACTCTTTTCTTCGACTATTACGTTCTTCATTTTCTAAAGCTATGTTACTTTCGTTTTTGATTTCCTCCGAAAC

Gln Leu Arg Lys Lys Glu Ala Asp Asn Ala Arg Arg Val Lys Asp Phe Asp Thr Met Lys Ala Lys Thr Lys Glu Ala Phe

AATTGAGTTTGTGTTTGTATAAGGATTTTGTAGTGAAATAGAAATCAATGGAATGATATTTCTCACAACAAAAAGAC 1040

TTAACTCAAAACAACAACTATTCTTAAACAACTCCTTTTATCTTAAGTTACCTTACTATAAAGAGTGTGTTTTCTG

Glu Leu Ser Phe Val Phe Asp Lys Asp Phe Leu Ser Glu Asn Arg Ile Gln Trp Asn Asp Ile Ser His Asn Lys Lys Asp

TCTGCAAGTAAAAAGAAAAACAATGAAAGAAGCGGACACAAATGGATGATATTTTAAAGAGGCTAAAAAATAATAATCTAC 1120

AGACGTTCAATTTCTTTTGTACTTTCTTCGCCTGTGTTACCTACTATAAAAAATTCCTCCGATTTTTTATTATTAGATG

Ser Ala Ser Lys Arg Lys Thr Met Lys Lys Glu Ala Asp Thr Met Asp Asp Ile Phe Lys Arg Leu Lys Asn Lys Ser Thr

ATATGATCGTTATGCTGGATTCTTTCTATTGTTCGATTACAGGTTCAGACCAGCAGAGTTTTAAAGGGTATAGAGA 1200

TATACTAGCAATACGACCTAAGGAAAGATAACAAGCTAATGTCCAACGTCGTGCTCTTCAAAATTTCCCATATCTCT

Tyr Asp Arg Tyr Ala Gly Phe Leu Ser Ile Cys Ser Ile Thr Gly Cys Arg Pro Ala Glu Val Leu Lys Gly Ile Glu

FIG. 1B-1

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Tyr Asp Arg Tyr Ala Gly Phe Leu Ser Ile Cys Ser Ile Thr Gly Cys Arg Pro Ala Glu Val Leu Lys Gly Ile Glu
TAGTAAGAAACAGATATGAGGATGGTATATCTTTTAAATACTTGGTGCAAGGTTGGAAATGACAGAGGGCAAGCGAA
1280
ATCATTCTTTGTCTATACCTACCATATAGAAAATTTATGAACCACGTTTCCAACCTTTACIGTCTCCCGTTTCGCTT
Ile Val Arg Asn Arg Tyr Glu Asp Gly Ile Ser Phe Lys Ile Leu Gly Ala Lys Val Gly Asn Asp Arg Gly Gln Ser Glu
AGAACATTACATTTTGATTATCAAAATATCATGATAATGAGCAAAATGAATTATATTTTGTGCGCAATTAAAGATAATAA
1360
TCTTGTAATGTAAACTAAATAGTTTATAGTACTATTACTCGTTTACTTAATAATAAACACGCGTTAATTTTCTATTATT
Arg Thr Leu His Phe Asp Leu Ser Lys Tyr His Asp Asn Glu Gln Met Asn Tyr Ile Leu Ser Gln Leu Lys Asp Asn Lys
ATTTTCTACAAACCAGATGGGAAGCTCTACACAGCTTGAGGCAATACCTCTACATCCAACATAGAACGTTTTCACGTG
1440
TAAAAAGATGTTTGGTCTACCCCTTCGAGATGTTGTGCGAACTCCGTTATGGAGATGTAGGTTGTATCTTGCAAAAGTGACA
Phe Phe Tyr Lys Pro Asp Gly Lys Leu Tyr Asn Ser Leu Arg Gln Tyr Leu Tyr Ile Gln His Arg Thr Phe Ser Leu
ATACACTTCGTCACAGGGTTGCGAGTGATCTCAAGGCATCCGGTGCAGATGACTTCACCATAGCGGCTNTTTTGGGTCAC
1520
TATGTGAAGCAGTGTCCTCAACGCTCACTAGAGTTCCGTAGGCCACGCTCTACTGAAGTGGTATCGCCGANAAAAACCCAGTG
Tyr Thr Leu Arg His Arg Val Ala Ser Asp Leu Lys Ala Ser Gly Ala Asp Asp Phe Thr Ile Ala Ala ?m Leu Gly His

FIG. 1B-2

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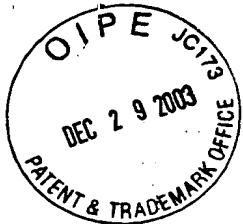
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AGATCTCAACCAGTTTAAAAATCGCACITCAAGAAGTAAAAATAGGGCCGGCACCGGCTCTTTTTTTGGTGTGTTTGTAG 80
TCTAGAGTTGGTCAAAATTTAGCGTGAAGTTCTTCATTTTTATCCCGCGCGTGCCGAGAAAAAACACACAAAAACATC
TTAGTGGATATATCTGTTAGCTACAGAGAAAAAGCGATTTTAGAGGGTTTGACGAGGTTTTTCGAGCTATCCAGGTTTT 160
AATCACCTATATAGACAAATCGATGTCCTTTTTCGCTAAATCTCCAAACTGCTCCAAAAAGCTCGATAGGTCCCAAAA
TGGGTTTTTGGGTTGGATCAGAAAAAGTCGTTCAAGATTATTGACATAAAGACAGGAAGTTTATAACAAGTACCAGATA 240
ACCCAAAAACCCCAACCTAGTCTTTTCAGCAAGTTCTAATAACTGTATTTCTGTCTTCCAAATATTGTTCAATGGTCTAT
CGACAAAACACAGCTTTGCAGGCTGGCTTTGAAGGACTAAAAGAAGTGGGACTTCTTTGAGTCTTGTAATCAAGTTGGTC 320
GCTGTTTTGGTCGAAACGTCGACCGAAACTTCCTGATTTTCTTACCCCTGAAGAACTCAGAACATTAGTTCAACCAG
AGAACTCGATTACGATTTGTAAGTAGAAATCTAACTCACATTTCCGAGAAAGTCAAACCTTACCTCTTAGTTACAACCTCAA 400
TCTTGAGCTAATGCTAAACATTCACTTTAGATTGAGTGTAAAGCGTCTTTCAGTTTGAATGGAGAAATCAATGTTGAGTT
AAATTTCTTAGCCTTTTCAGATCCTTAAGCATACATATTTTGTTTAAACCGATTGTGTCCGGTGTGTTGGTGGAGCCAT 480
TTTAAAGGATCGGAAAAGCTAGGAATTCGTATGTATAAACAAATTTGGCTAACACAGGCCACAAACCCACACCTCGGTA

FIG. 1D-1

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560
TGATCCGAGTGGTCAATATGTGATTGTTTCGCCAAACAGTGTATGTAGGTCTAAACGGGGAGTGCTACAAAAGACCATACC
ACTAGGCTCACCAGTTATACACTAACAAAGCGGTTTGTACATACATCCAGATTTGCCCTCAGGATGTTTTCTGGTATGG
640
CGAAACGAGTGCCCTAAGTGTTTTGGTTATCAACCAGGTAAGCTATGAGAAAGCCAGCCATAAATGGGGTTAGGTTGAAG
GCTTTGCTCACGGATTACAAAACCAATAGTTGGTCCATTCGATACCTCTTCGGGTCGGTATTTACCCCAATCCAACCTTC
720
CAAGTCTTCATATGGTCCGACACAAAGGGGTAGTAGGGTGTCTCAAACTGAAAGGTTTGATAGCTCTAAGCTTGTGCT
GTTCAGAAGTATACCACGCTGTGTTCCCCACATCATCCACAGCAGTTTGACTTTCCAAACATATCGAGATTCGAACACGA
800
TCGTGGGTCAAGCCCTCAAGTGTGATCTGTGGTGTCTACCTGATAACTTTCACTTTTTCGAGTGAAATTCAGGAGG
AGACACCCAGTTCGGAGTTCACGACTAGACACCCACAGCAGATGGACTATTGAAAGTGAAAAAGCTCACITTAAGTCCCTCC
880
CGAAACTATGGGTCAAGCCCAGCTTTGCTGGGTTCCGGCACATCCAGCTTACAGCATTTGGTGCTCTTCGGAAGCTGAAGC
GCTTTGATACCCAGTTCGGGTGAAACGACCCCAAGCCGTGTAGGTGGAATGTCGTAAACCACGAGAAGCTTCGACTTCG

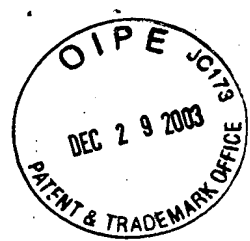
FIG.-1D-2

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ACAAAACTAATCCAGGTTTGGGTTTTTATACCAGAAGCAAAACAAAAATAAACAAAGAAAAATTTTCGAGCGA 960
TGTTTTAGATTAGGTCCCAACCCAAAAAATATGGTCTTCGTTTTGTTTTTATTTTGTTCCTTTTAAAGCTCGCT
AAAAATATTTTGGAATTTTTAAAGCGGATACTTGCTACCGCACTTTTGCCATATTTAAAACCTGACIATCTTTATAAGT 1040
TTTTTATAAACCTTAAAAAATTTCCGCTATGAACGATGGGTGAAACGGTATAAAATTTGGACTGATAGAAATATTCA
TAATAGATATATCCGTTAGATTATAAAGTATGTTAAAAACGAGTAAACAACTAATATATATTTAATTCIGAATTATA 1120
ATTATCTATATAGGCAATCTAATATTCATACAATTTTGCICATTTTGTATTGAATATATAAATTAAGACTTAATAT
TTTGACAGTGATTATTTAATATATTAAGAGATATATCTATTAGCTTAAATATACTAAAAAGAGGTAAATATATGGAT 1200
AACTGCTACTAATAATTATATAATTCCTCTATATAGATAATCGAATTTATATTGATTTTTTCTCCATTATATACCTA
TGTGATTTAAAAAGCATTAGAAAAATGAATAGAACATTATAAAAAGACGGTGATATCAAATCTTTCTTACAATACTT 1280
ACACATAAATTTTTTCGTAATCTTTTACTTTATCTTGTAAATATTTTTCTGCCACTATAGTTTAGAAAGAATGTTATGAA
GCATTACTTTGATATAGATAAGCATTAAATGGTGATGAATGTGGCGATATTATAAACTCAAATTTATCCATTGATGAAA 1360
CGTAATGAAACTATATCTATTTCGTAATTTACCACACTACTACACCGCTATAATATTTGAGTTTAAATAGGTAAGTAACTACTTT

FIG.-1E-1



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1440
GTTTGTCTTCTTGATGTTGAGCACAAATTCGGCTGGCTTCAATAAAATAACAGAGACGAAATGAATATTTATCA
CAAACTAGAAGAACTACAACCTCGTGTTAAAGCCGACCCGAAAGTTATTTATTATGCTCTGCTTACTTATAAATAGT
1520
TCAGCTAAACTGAAAATGATTTTAAAAAATACTCGTTCTTTTATTCGATCAATTGGGAAGAAATTTAATTACGATGA
AGTCGATTTTGACITTTTACTAAAATTTTTATGAGCAAGAAATAAGTAAGCTAGTTAACCCCTTCTTAAATTAATGCTACT
1600
GATGAGTACAATACATCAAGAAATGATTAAAGGATTAGATAATTACACATATGGAGAAATAACCATATGAATAATAAAT
CTACTCATGTTATGAGTTCTTTACTAATTTCCCTAATCTATTAAATGTTGTATACCTCCTTTATTGGTATACTTATTATTTA
1680
AAGAGAAATATATTGATTTCGAAATAACAAAGAGATATAAAGAAAGTCAGCTCTTAAAAATATCTGCATTGATCGATGTTT
TTCCTTATATAACTAAAGCTTTATTGTTTCTATATTTTCTTTCAGTCGAGAAATTTTATAGACGTAACCTAGCTACAAA
1760
TAAAGTAGATGAAAAATTTATTGATGAAGAGGATTTGCAACTAAAGATATTGAAAAATATCGTATGAAAAATCCTATTGAT
ATTTTCATCTACTTTTAAATAACTACTTCTCCTAAACGTTGATTTCTATAACTTTTATAGCATACTTTTAGGATAACTA
1840
GATCCAGATGATGGCATAAGAAAAATCACAATTCGCACGAAGAAATGCCTATGCTTTCGGCATTAAAAAACAAGCAAAAA
CTAGGCTACTACCGTATTCITTTAGTGTTAAGCGTGCTTCTTTACGGATACGAAAGCGTAATTTTTTGTTCGTTTTT

FIG. 1E-2

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CTCTAGA

FIG. 1F

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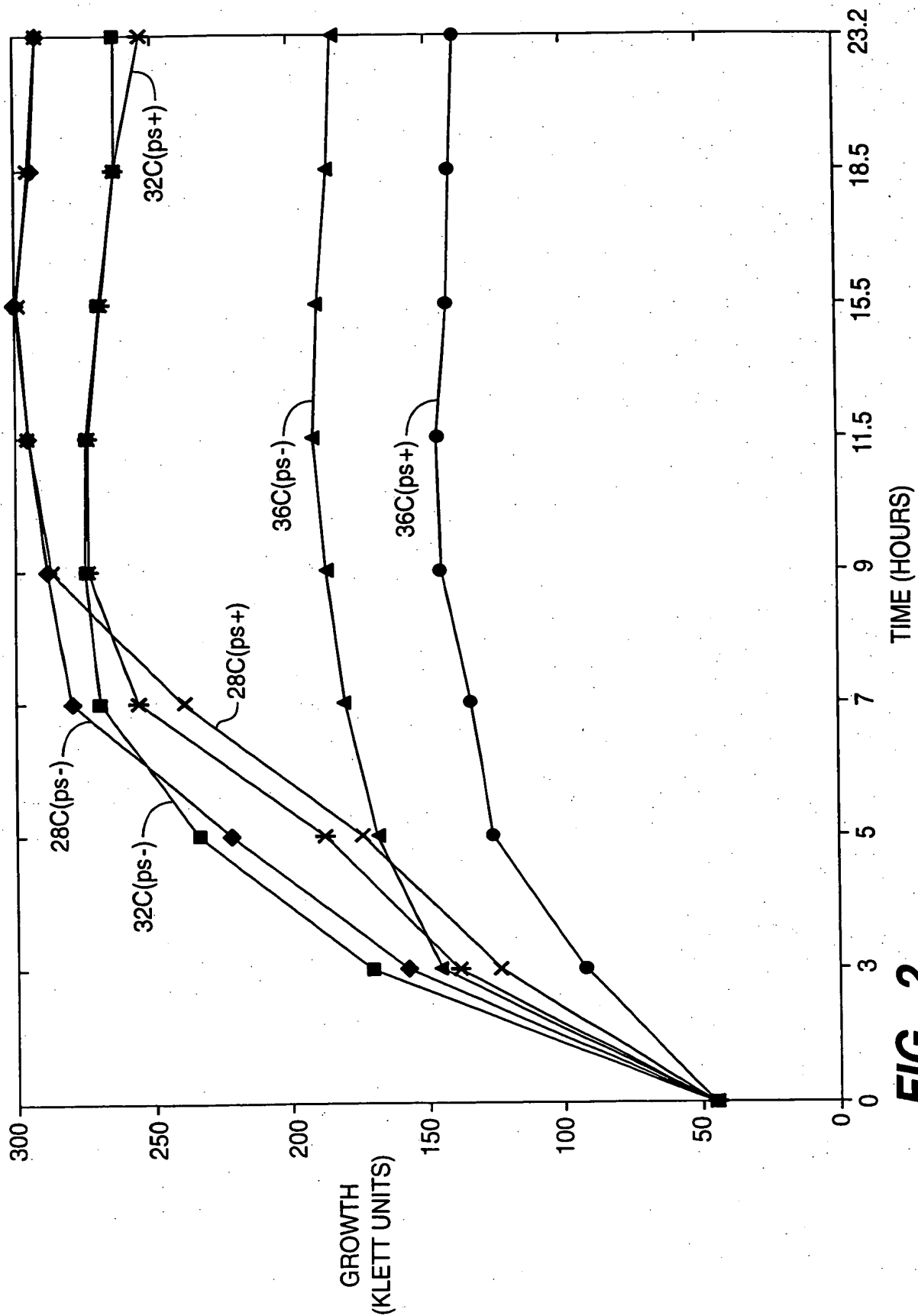


FIG.-2

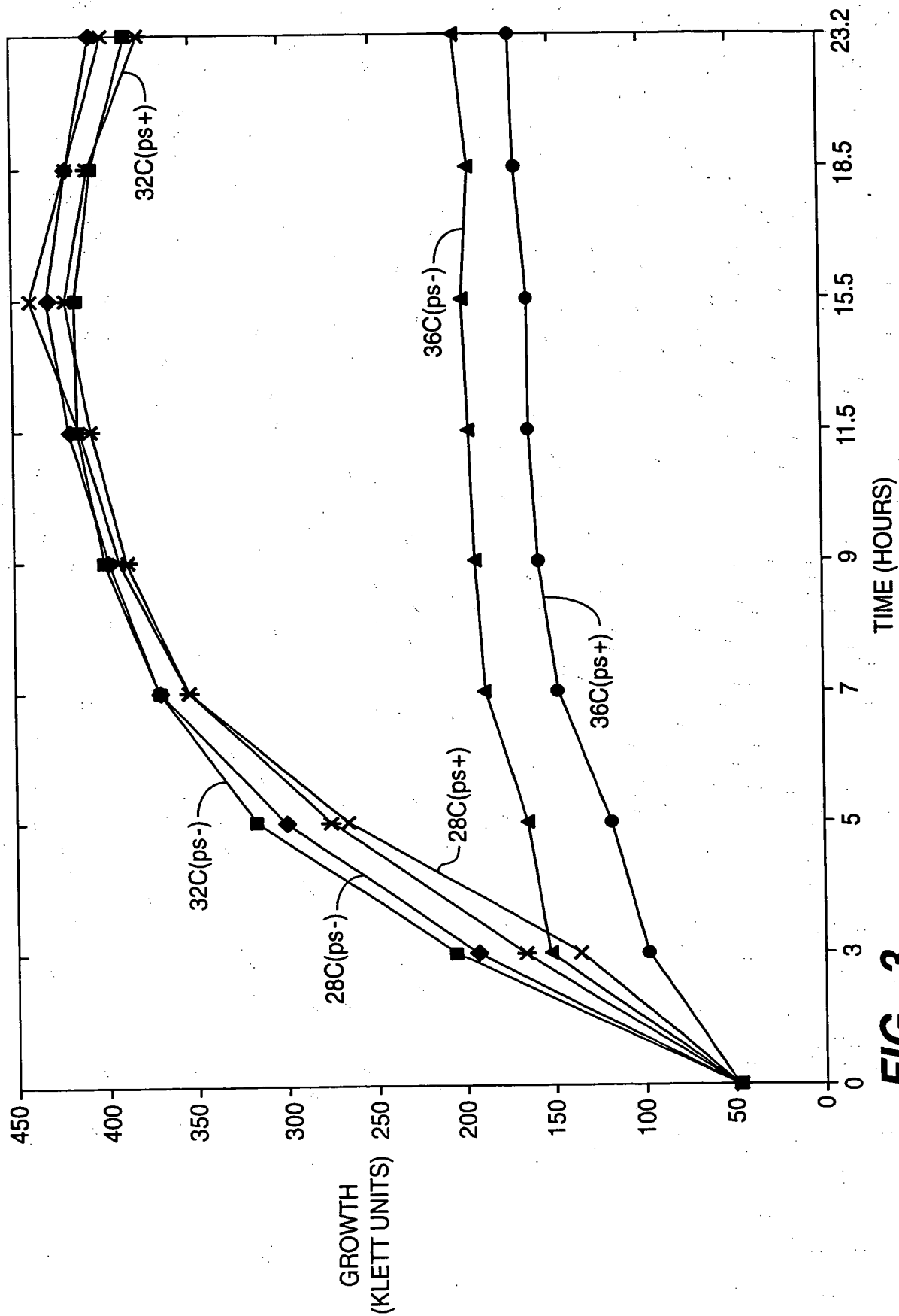
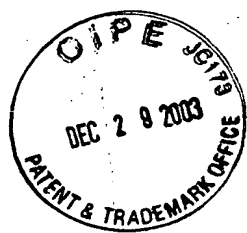


FIG._3